

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
21 May 2004 (21.05.2004)

PCT

(10) International Publication Number
WO 2004/041494 A1

(51) International Patent Classification⁷: **B29B 7/76**

(21) International Application Number:
PCT/EP2003/012222

(22) International Filing Date:
3 November 2003 (03.11.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
MI2002A002336 5 November 2002 (05.11.2002) IT

(71) Applicant (for all designated States except US): **AFROS S.P.A.** [IT/IT]; Via G. Ferraris, 65, I-21042 Caronno Pertusella - Varese (IT).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **CORTI, Maurizio**

[IT/IT]; Via Veneto, A, I-22020 San Fermo della Battaglia - Como (IT). **CORRADI, Piero** [IT/IT]; Via Stoppani, 18, I-21047 Saronno - Varese (IT). **FIORENTINI, Carlo** [IT/IT]; Via Volonterio, 21, I-21047 Saronno - Varese (IT).

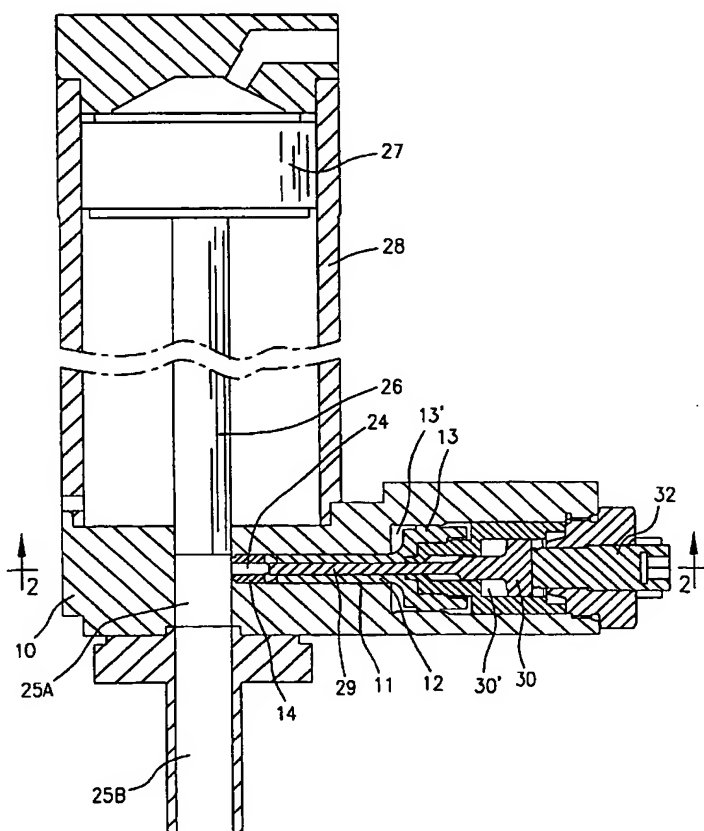
(74) Agent: **COLOBERTI, Luigi**; Via E. De Amicis, 25, I-20123 Milan (IT).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,

[Continued on next page]

(54) Title: CO-INJECTION MIXING METHOD AND APPARATUS



(57) Abstract: Method and device (10) for mixing polyurethane - forming reactive chemical components; at least first and second chemical components (A, B) are introduced into a common pressure and feeding chamber, from where the chemical components are made to flow and co-injected through one or more narrow orifices (31) into a mixing chamber. During co-injection of the chemical components (A, B) a first mixing takes place into the jet strim, while a final intimate mixing is performed by impingement and collision into the mixing chamber (24) of the device; selectively actuable cleaning members (12, 29) eject the residual chemical material remaining into the common pressure and feeding chamber (15), and the mixing chamber (24) of the mixing device (10).



ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY,

- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for the following designation US
- of inventorship (Rule 4.17(iv)) for US only

Published:

- with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.